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NATIONAL LEVEL SCIENCE TALENT SEARCH EXAMINATION

CLASS - 5

Question Paper Code : 1P214

KEY

1. D	2. A,B,C	3. D	4. B	5. B	6. D	7. A	8. C	9. C	10. B
11. D	12. D	13. D	14. C	15. B	16. B	17. B	18. C	19. B	20. D
21. B	22. C	23. A	24. B	25. A	26. D	27. B	28. C	29. D	30. D
31. C	32. B	33. C	34. C	35. B	36. C	37. A	38. B	39. C	40. D
41. B	42. B	43. D	44. C	45. B	46. D	47. C	48. A	49. B	50. B
51. B	52. C	53. C	54. D	55. A	56. B	57. B	58. C	59. C	60. B

SOLUTIONS

MATHEMATICS

01. (D) Divisible by 2, 3, 5 → must end in 0, divisible by 6 & 15, not necessarily by 8.

02. (A,B,C) Sequence : 4, 16, 64, 256, 1024, 4096, 16384, 65536 ……..

Numbers that cannot be in the sequence: 23468, 12986, 23232

03. (D) 650000 ÷ 0.65 = 1,000,000 times bigger.

04. (B) Tina has 5 times as many as Meena" and "Meena has 24 fewer" → Total difference = 4 parts → Divide 24 by 4 → 6 → Multiply by 5 → Tina's sweets = 30.

05. (B) 9 : 00 AM

- First jog → 7:25 + 0:35 = 8:00
- Rest → 8:00 + 0:10 = 8:10
- Second jog → 8:10 + 0:50 = 9:00

06. (D) Square side $= \frac{20}{4} = 5$ cm. Cutting into two rectangles (by a straight cut parallel to a side) does not change total length of the outer edges plus the cut: the sum of perimeters of the two rectangles equals perimeter of square plus twice the cut length.

Let the cut be along a side direction, splitting side 5 into parts a and 5 – a. The cut length = 5. Then sum of perimeters = 20 + 2 × 5 = 30.

One rectangle perimeter = 16, so the other = 30 - 16 = 14 cm

07. (A) 3 minutes 20 seconds = 200 seconds. Rate is 1 paisa per 2 seconds $\rightarrow$ cost

$$= \frac{200}{2} = 100 \text{ paise} = 1.00 \text{ rupee}$$

08. (C) Tripling each day means day 3 = day 1 × 9. Since day 3 has 3105 visitors, divide 3105 by 9. 3105 ÷ 9 = 345.

09. (C) 50 + 4 + 0.3 + 0.02 + 0.005 = 54.325.

10. (B) Difference in speed

= 220 – 190 = 30 m/min

12 minutes = 30 × 12 = 360 m

Jatin was 360 m ahead

11. (D) 3rd container has x litres

2nd container has (8 + x) litres

1st container has (4 + 8 + x) litres

Total volume of water in 3 containers

x + 8 + x + 12 + x

3x + 20 = 68

3x = 68 – 20 = 48

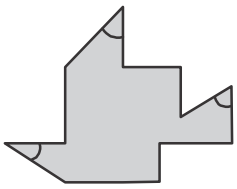
x = 16 litres

3rd container has 16 litres

2nd container has 8 + 16 = 24 litres

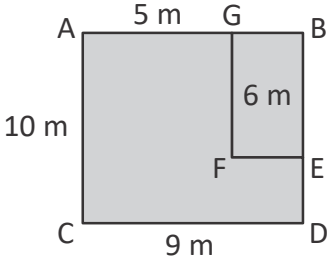
1st container has 12 + 16 = 28 litres

12. (D) 3 angles in this figure are smaller than a right angle.



13. (D) 987654321 × 9 = 8888888889

14. (C)



Area of ABCD – Area of BEFG

9 × 10 – 6 × 4

15. (B) Width = 5, 10, 15,…

Length = 4 × width

Perimeter = 2 (Length + Width)

= 2 (4W + W) = 10W

Given: 10W < 150

W < 15

Possible widths (multiples of 5 less than 15)

5 m, 10 m

16. (B) 1.7 kg – 0.4 kg = 1.3 kg

17. (B) x + 4x = 60 cm

5x = 60 cm

x = 12 cm

18. (C) Each shaded number (12, 15, 24, 33, 42, 45) is divisible by 3 (sum of digits divisible by 3). For example, 12 ÷ 3 = 4, 33 ÷ 3 = 11, etc.

19. (B) John ate more than Billy and the difference is given by

$$1\frac{2}{3} - 1\frac{1}{4} = (1-1) + \left(\frac{2}{3} - \frac{1}{4}\right) = \left(\frac{2}{3} - \frac{1}{4}\right)$$

Write fractions with the same denominator

$$\frac{2}{3} = \frac{2}{3} \times \frac{4}{4} = \frac{8}{12}$$

$$\frac{1}{4} = \frac{1}{4} \times \frac{3}{3} = \frac{3}{12}$$

The difference is

$$1\frac{2}{3} - 1\frac{1}{4} = \frac{8}{12} - \frac{3}{12} = \frac{5}{12}$$

John ate $\frac{5}{12}$ of a pizza more than Billy.

20. (D) Freezing water is at 0°C, not 100°C.

21. (B) 9 parts = 54 $\rightarrow$ 1 part = 6 $\rightarrow$ 7 parts

= 42 $\rightarrow$ total = 42 + 54 = 96.

22. (C) Convert each

- 70 ten-thousands = 7,00,000
- 7 lakh = 7,00,000
- 70 thousands = 70,000
- 70,000 tens = 7,00,000

23. (A) A rhombus would need two equal sides in both original triangles, so a rhoumbus is impossible with these triangles.

24. (B) Remaining = 1,05,000 – 27,600 = 77,400

Monthly = 77,400 ÷ 12 = Rs. 6,450

25. (A) 246 × 128 = 31488 (P)

492 × 64 = 31488 (P)

GENERAL SCIENCE

26.. (D) Bat is a mammal have no feathers while pigeon and eagle are birds with feathers.

27. (B) Dandelion seeds have fluffy parachutes that help them float in the wind.

28. (C) Sequence is: Ploughing, Levelling, Adding manure/fertilizer, sowing seeds and irrigation .

29. (D) Seeds require air, water, and warmth for germination.

30. (D) Venus is closest to Earth in size and mass, hence called Earth's twin.

31.. (C) p-iii; q-iv; r-i; s-ii

Physical change (change in appearance)

Properties (qualities describ an object)

Chemical change (A change to a different type of matter with new properties)

Matter(Anything that has mass and occupies space)

32. (B) Soil erosion is the process where topsoil is worn away by natural forces like wind, water, and sun.

33. (C) Sugar is a carbohydrate that provides quick energy. Soyabean gives protein, orange and spinach provide vitamins.

34. (C) Anaemia is caused by iron deficiency, leading to low haemoglobin and reduced oxygen transport.

35. (B) Dark colors absorb more solar radiation and convert it into heat, making objects hotter than lighter colors, which reflect more heat.

36. (C) The picture likely shows food being dried in sunlight, a traditional preservation method that removes moisture to inhibit microbial growth.

37. (A) Foul smell and colored patches indicate spoilage due to bacterial or fungal growth, often encouraged by warmth and moisture.

38. (B) Webbed feet help in swimming, and a streamlined shell reduces water resistance, aiding aquatic life.

39. (C) Camouflage helps the grasshopper blend into its surroundings, avoiding detection by predators.

40. (D) Paper plates, paper cups, and wooden chopsticks are biodegradable (break down naturally), while plastic utensils are not.

41. (B) Sugarcane is grown from stem cuttings (called setts).

42. (B) Cotyledons store food in seeds, nourishing the embryo until leaves form and start photosynthesis.

43. (D) Scissors have the fulcrum between the effort and load, making them a first-class lever. Nutcracker is second class, tweezers third class, wheelbarrow second class.

44. (C) Force changes the motion (or shape) of an object kicking applies force, changing the ball's speed/direction.

45. (B) Carbon dioxide is only about 0.04% of air but essential for photosynthesis in plants.

46. (D) Pumice is a volcanic rock with many air pockets, making it porous and lightweight.

47. (C) Medulla oblongata controls involuntary functions like heartbeat and breathing.

48. (A) An inclined plane is a sloping surface that reduces the effort needed to lift objects to a higher level.

49. (B) Day and night occur because the Earth rotates on its axis, causing different parts to face toward or away from the Sun.

50. (B) The sour smell and slimy texture are due to bacterial fermentation, where bacteria break down sugars and produce acids and slimy byproducts.

51. (B) Air trapped in hollow stems provides buoyancy, helping aquatic plants like water lilies float.

52. (C) Obsidian is a naturally occurring volcanic glass that cools quickly, giving it a fine-grained, smooth, and glossy appearance.

53. (C) The camel's hump stores fat, which can be converted to energy and water when food is scarce.

54. (D) The figure likely shows a farmer using a plough to turn and loosen soil before planting.

55. (A) Jet planes typically fly in the stratosphere to avoid weather disturbances and for smoother, more efficient flight.

CRITICAL THINKING

56. (B) A bigger wheel covers more distance in one turn than a smaller wheel because it has to travel a longer path to complete a full circle.

So the toy car with Wheel 2 (4 units) will roll the furthest.

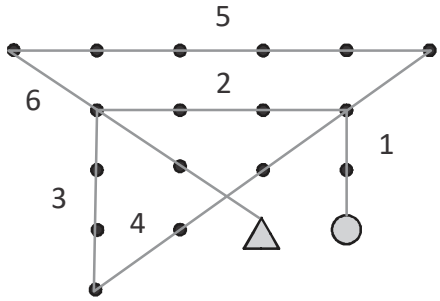
57. (B) From Statement 1: Varun > Rahul > Aarav

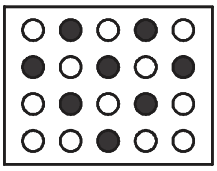
From Statement 2: Aarav > Ishaan

So the order becomes: Varun > Rahul > Aarav > Ishaan

Thus, Varun is heavier than Ishaan, not lighter.

So, Statement 3 is false.

58. (C) 

59. (C) 

60. (B) P and S are ladies, unmarried, and do not play games.

- No lady can be a chess or badminton player → ladies cannot play these games.
- Q is a brother → Q is male and not chess or tennis player (so Q plays badminton).
- There is one married couple, and T is the husband → T must be male.
- P and S are unmarried → they cannot be T's wife.
- Q is male → cannot be wife.

So, the only person left who can be T's wife is R.